

WHAT IS CLAIMED IS:

1. A current source circuit comprising:
plural transistors;
5 means for switching series and parallel connections of the plural transistors;
means for converting a first current input through the plural transistors to
voltage;
means for holding the converted voltage;
means for converting the held voltage to a second current; and
10 means for supplying the converted second current to an object to be driven.
2. A current source circuit comprising:
plural transistors;
means for switching series and parallel connections of the plural transistors;
15 means for converting a first current input through the plural transistors to
voltage;
means for holding the converted voltage;
means for converting the held voltage to a second current; and
means for supplying the converted second current to an object to be driven,
20 wherein the plural transistor are connected in series when current is supplied to
the object to be driven, while the plural transistors are connected in parallel when the
first current is converted to voltage.
3. A current source circuit comprising:
25 a first transistor and a second transistor;
a capacitor element connected to the gate electrodes of the first transistor and
the second transistor;
a power source line connected to one end of the capacitor element;
a current source line connected to the other end of the capacitor element; and
30 means for supplying electric charges held in the capacitor element as current to
an object to be driven.
4. A current source circuit according to claim 3, wherein the first transistor and
second transistor are p-channel type thin film transistors.
- 35 5. A current source circuit according to claim 3, wherein the first transistor and

second transistor are singlecrystalline, SOI or organic transistors.

6. A current source circuit comprising:

a first transistor, a second transistor and a third transistor;

5 a capacitor element connected to the gate electrodes of the first transistor, the second transistor and the third transistor;

a power source line connected to one end of the capacitor element;

a current source line connected to the other end of the capacitor element; and

10 means for supplying electric charges held in the capacitor element as current to an object to be driven.

7. A current source circuit according to claim 6, wherein the first transistor, second transistor and third transistor are p-channel type thin film transistors.

15 8. A current source circuit according to claim 6, wherein the first transistor, second transistor and third transistor are singlecrystalline, SOI or organic transistors.

9. A display device comprising a light emitting element and a current source circuit for supplying current to the light emitting element,

20 wherein the current source circuit has:

plural transistors;

means for switching series and parallel connections of the plural transistors;

means for converting a first current input through the plural transistors to voltage;

25 means for holding the converted voltage;

means for converting the held voltage to a second current; and

means for supplying the converted second current to light emitting element.

10. A display device comprising:

30 a scanning line;

a signal line to which digital signals are input;

a light emitting element provided at the intersection position of the scanning line and the signal line; and

a current source circuit for supplying current to the light emitting element,

35 wherein the current source circuit has:

plural transistors;

means for switching series and parallel connections of the plural transistors;
means for converting a first current input through the plural transistors to
voltage;

means for holding the converted voltage;

5 means for converting the held voltage to a second current; and

means for supplying the converted second current to light emitting element.

11. A method for driving a current source circuit having a first transistor, a
second transistor, a capacitor element connected to the gate electrodes of the first
10 transistor and the second transistor and a current source line and power source line
connected to the capacitor element, the method comprising the steps of:

feeding current supplied from the power source line to the power source line
through the first transistor and second transistor, which are connected in parallel; and

15 feeding current from the power source line to an object to be driven through the
first transistor and second transistor, which are connected in series.

12. A method for driving a current source circuit having a first transistor, a
second transistor, a capacitor element connected to the gate electrodes of the first
transistor and the second transistor and a current source line and power source line
20 connected to the capacitor element, the method comprising the steps of:

connecting the first transistor and second transistor in parallel when a setting
operation is performed on the first transistor and second transistor; and

connecting the first transistor and second transistor in series when current is
supplied from the first transistor and second transistor to an object to be driven.

25

13. A method for driving a current source circuit having a first transistor, a
second transistor, a capacitor element connected to the gate electrodes of the first
transistor and the second transistor and a current source line and power source line
connected to the capacitor element, the method comprising the steps of:

30 feeding current to the capacitor element and holding electric charges such that
the capacitor element can feed a predetermined amount of voltage;

supplying current based on the predetermined amount of voltage to the first
transistor and second transistor, which are connected in parallel, such that the transistors
can feed a predetermined amount of current; and

35 supplying the predetermined amount of current to an object to be driven
through the first transistor and second transistor, which are connected in series.

14. A method for operating a display device including a current source circuit having a first transistor, a second transistor, a capacitor element connected to the gate electrodes of the first transistor and the second transistor and a current source line and power source line connected to the capacitor element and a light emitting element connected to one electrode of the second transistor, the method comprising the steps of:
- feeding current to the capacitor element and holding electric charges such that the capacitor element can feed a predetermined amount of voltage;
 - supplying current based on the predetermined amount of voltage to the first transistor and second transistor, which are connected in parallel, such that the transistor can feed a predetermined amount of current; and
 - supplying the predetermined amount of current to the light emitting element through the first transistor and second transistor, which are connected in series.
15. A method for driving a display device, the display device including:
- plural scanning lines;
 - plural signal lines to which digital signals are input;
 - light emitting element provided at the intersection positions of the scanning lines and the signal lines; and
 - a current source circuit for supplying current to the light emitting elements, the method comprising the steps of:
- dividing a unit frame period corresponding to an synchronizing timing of video signals input to the signal line into m sub frame periods, SF1, SF2... and SFm (where m is a natural number of two or larger) and providing at least one of the m sub-frame periods SF1, SF2..., and SFm with an erasing time; and
 - performing a setting operation on the current source circuit in the erasing time.